2. (Amended) The proton exchange fuel cell according to claim 1, wherein said multi-coating layer comprises said peeling resistance layer provided on said separator substrate, said corrosion resistance layer provided on said peeling resistance layer, and said low electric resistance layer provided on said corrosion resistance layer.

3. (Amended) The proton exchange fuel cell according to claim 1, wherein said multi-coating layer comprises a peeling resistance and corrosion resistance layer made as one layer by combining said peeling resistance layer and said corrosion resistance layer provided on said separator substrate, and said low electric resistance layer provided on said peeling resistance and corrosion resistance layer.

4. (Amended) The proton exchange fuel cell according to claim 1, wherein said separator substrate comprises one kind or a composite material of two or more kinds of materials selected from the group consisting of stainless steel, copper, an alloy of copper, aluminum, an alloy of aluminum, titanium and an alloy of titanium.

5. (Amended) The proton exchange fuel cell according to claim 4, wherein said multi-coating layer comprises one kind or a composite material of two or more kinds of materials having a low contact resistance selected from the group consisting of Ni, Fe, Co, B, Pb, Cr, Cu, Ti, Bi, Sn, W, P, Mo, Ag, Pt, Au, TiC, NbC, TiCN, TiN, CrN, TiB_2, ZrB_2, Fe_2B, and Si_3N_4.

6. (Twice Amended) A method of manufacturing a proton exchange fuel cell, comprising:

preparing a separator substrate; and

forming a multi-coating layer on said separator substrate by a process, capable of forming a thin film, selected from the group consisting of a physical evaporation process, a chemical evaporation process, a nitride treating process, a boride treating process, a

carbonizing process, a plating process and a spraying process.

7. (Amended) The method according to claim 6, wherein said forming of said multi-coating layer comprises:

forming a peeling resistance layer on said separator substrate;

forming a corrosion resistance layer on said peeling resistance layer; and

forming a low electric resistance layer on said corrosion resistance layer.

8. (Amended) The method according to claim 7, wherein in said step of forming said multi-coating layer, said multi-coating layer is formed using said plating process such that a film thickness of said low electric resistance layer is 0.02 μm or more, a film thickness of said corrosion resistance layer is 0.1 μm or more, and a film thickness of said peeling resistance layer is 0.1 μm or more.

9. (Amended) The method according to claim 7, wherein in said step of forming said multi-coating layer, said multi-coating layer is formed using said physical evaporation plating process such that the film thickness of said low electric resistance layer is 1.0 μm or more, the film thickness of said corrosion resistance layer is 1.0 μm or more, and the film thickness of said peeling resistance layer is 1.0 μm or more.

10. (Amended) The method according to claim 9, wherein a crystal orientation of each layer of said multi-coating layer is oriented to a direction of a Miller index of (200) or (002).

11. (Amended) The method according to claim 9, wherein a porosity in said multi-coating layer is 5 x 10^{0}% or less in terms of defective area rate.

12. (Amended) The method according to claim 6,

wherein a material for said multi-coating layer formed on said separator substrate comprises one kind or a composite alloy material of two or more kinds of materials having a

lower electric resistance than that of said separator substrate of metallic material, ceramics material and cermet material.

13. (Amended) The method according to claim 6, further comprising:

electrically, mechanically or chemically removing a passive state film or an oxide existing on said separator substrate before said forming of said multi-coating layer.

14. (Twice Amended) A method of manufacturing a separator of a proton exchange fuel cell, comprising:

preparing a separator substrate; and

forming a multi-coating layer on said separator substrate by a process, capable of forming a thin film, selected from the group consisting of a physical evaporation process, a chemical evaporation process, a nitride treating process, a boride treating process, a carbonizing process, a plating process and a spraying process;

removing said multi-coating layer electrically, mechanically or chemically, so that said multi-coating layer and said separator substrate are individually recovered; and

reusing material of said recovered multi-coating layer in manufacturing of said-proton exchange fuel cell.

15. (Amended) The method according to claim 14, further comprising:

after recovering said separator substrate, pulverizing and resolving said recovered separator substrate electrically, mechanically or chemically; and

reusing material of said recovered separator substrate in manufacturing of said proton exchange fuel cell.

16. (Twice Amended) A proton exchange fuel cell prepared by the method according to one of claims 6 or 14.

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17. (Amended) The proton exchange fuel cell according to Claim 1, wherein said